Table 1: 10-Nation Comparison of ADHD Diagnostic and Treatment Practices

Topic Area	Australia	Brazil	Canada	China	Germany
System for diagnosing ADHD; professionals involved in assessment and diagnosis	The official standard is ICD-10, but most clinical use is with DSM-IV and DSM-IV-TR. A wide range of professionals are involved in assessment and diagnosis.	DSM-IV is by far the most widely used system. Although referrals are rare, children and adolescents are usually referred to child neurologists, who still perform physical examinations and often request EEG or neuroimaging evaluations. Adult ADHD is treated almost exclusively by psychiatrists.	DSM-IV used primarily. National practice guidelines at www.caddra.ca have established a national standard for assessment in all age groups, which includes as a minimum a full clinical assessment, physical exam, a broad-based rating scale to review differential diagnoses and comorbidities, and a specific ADHD rating scale.	The Chinese Classification and Diagnostic Criteria of Mental Disorders (CCMD-3), derived from ICD-10, is the official guide. Child and adolescent psychiatrists are the chief assessors, but there are far too few (just several hundred nationwide) for the population of 250 million youth.	For research, standardized clinical interview (ICD-10 and DSM-IV criteria); for clinical purposes, ICD-10 criteria (DSM-IV criteria used in about 20% of cases). For pre-schoolers, pediatricians are the main assessors; for children, divided between pediatricians and child psychiatrists; for adults, general practitioners and psychiatrists.
Treated prevalence: Medication	In a survey conducted in New South Wales, 67% of prescribers considered stimulants to be the first-line treatment for at least 51% of the ADHD patients in New South Wales.	Extremely low, but trends are toward increased use. There is still a tendency to use medications only in the most severe cases, if at all Anedoctal evidence suggests increasing non-medical use of stimulants.	1-3% of the child/adolescent population receive medication, translating to about 20-50% of those diagnosed with ADHD. Great regional variability exists, and most who are medicated are not maintained for even one year. A variety of short- and long-acting medications are in use.	It is estimated that approximately 65% of diagnosed children will receive ADHD-related medications in urban areas, yet rates of official diagnosis are low.	2.4% of children and adolescents aged 6-18 received MPH in 2006, which translates to about 30-40% of youth diagnosed with ADHD.
Which medications are used; what is relative share of each; which professionals are involved in medication treatment?	Immediate and long- acting methylphenidate and amphetamines; atomoxetine; clonidine. Prescribers: approximately 80% pediatricians and 20% psychiatrists.	Until recently, tricyclics were often used. In the last few years psychostimulants have had a huge increase in sales. Only methylphenidate is available, with immediate release representing over 85% of the country's market share. Atomoxetine and Lis-dexamphetamine are expected in 2011. Use of agents like buproprion is believed to be high.	Long-acting stimulant formulations appear to have outstripped short-acting medications. The government formulary that funds medications will pay for long- acting medication, with the exception of Alberta.	Data from urban areas reveal that methylphenidate, Concerta, herbal treatments, and atomoxetine are often used (1).	In 2009, 57% of patients received long-acting methylphenidate, 35% immediate release methylphenidate, and 7.5 % atomoxetine . Prescribers: pediatricians 43%; child psychiatrists 30%; adult psychiatrists 9%; others 18%.
Types of psychosocial treatments used	Behavior therapy more prevalent in urban than rural areas (69% vs. 43%). Also	Rarely, university outpatient units provide psychotherapy for children and adolescents	Family, individual, or any other therapy are essential components of care. On	Individual CBT or family therapy for ADHD-related symptoms,	In 2007, 56% of child/adolescent cases received occupational

and in what proportion; treated prevalence, if known.	used are speech and developmental therapy.	with ADHD. Cognitive-behavioral therapy is available in the most affluent capitals of the country, but psychodynamic therapies still remain the main treatment offered nationwide.	request, the patient can be referred to the Provincial ADHD Program and be serviced by tele-health or seen in outreach. A 9-hour workshop on all aspects of ADHD and its management is available. For schools, see www.teachADHD.ca. Offered are parent training, bibliotherapy, nurse consultation or home visit, psychoeducational assessments, alternative high school placement, in-class aides, specialized summer camps, etc.	parent training and teacher consultation available as well. Yet even in urban areas, extremely limited child mental health services are available to provide non-medication alternatives.	therapy, 50% psychoeducation, 40% occupational therapy/ergotherapy, 30% behavioral therapy, 30% parent training.
What payment systems are used; where are treatments "located" in the service delivery system?	The nation's medicare scheme provides universal coverage for 85% of medical physician costs for diagnosis and treatment and up to 12 psychologist treatment sessions, with referrals from M.D.'s. Pharmaceutical benefits cover prescription costs for stimulants and atomoxetine at an average of $20 (Australian) per prescription.	With rare exceptions, psychostimulants are not provided by government, whereas most other medications are provided for free (including antiretrovirals). Most health insurance plans cover for consultations but there is no reimbursement for psychostimulants. There are very few public (free) institutions providing treatment.	All medical care is free under national health system. Short- acting and some long-acting medications are either free for indigent populations or cost is covered according to income. Treatment is initiated with the family doctor and then moves out to community centers of excellence and then provincial centers of excellence.	Government basic medical insurance, along with out-of- pocket/ outpatient mental health clinic in mental health hospital or general hospital.	Medical services for outpatients are provided by professionals in private practice, complemented by a small number of hospital-based specialists with a specific license to treat outpatients insured by the statutory health insurance. Insurance companies pay for ADHD medications, acquired via official chemist/pharmacy.
Education system and its influences on prevalence and treatment	School counselors may refer to general practitioners via parents.	A large number of teachers do not consider ADHD a "true" disorder and believe that exercise and even physical punishment may be effective.	Teachers receive inadequate training. The Minister of Education is now producing criteria for guidelines for adaptations. All Provincial exams allow adaptations such as extra time. ADHD itself is not an educational designation with its own set of additional services.	Prevention and treatment guidelines on children with ADHD are available from the Chinese Child and Adolescent Psychiatry Association.	No direct influences have been noted, but treatment rates increase with age and school demands.
Adult ADHD: Trends in diagnosis	Seven-fold increase in diagnosis from 1993	Very few adults are diagnosed and treated.	Provinces are setting up a "life cycle" hub building on	Not yet well recognized; still vastly	In 2009, administrative prevalence was still well

and treatment	through 2003. Little involvement of adult psychiatrists in treatment, which is restricted to small numbers with sufficient interest and training. Pediatricians often treat up to age 25 years.	There is some evidence showing that increasing numbers of adults are being treated.	pediatric services. Family doctors are most involved. Waiting lists for adult specialists are > 1 year. No systematic clinics at present, despite dramatic increase in demand. Adult and child ADHD will be included in national medical testing to assure its place in medical school teaching.	underdiagnosed and undertreated.	under 1%. Increasing rates of medication treatment have been noted in recent years.
Key cultural, historical, or national attitudes and influences	Strong influence of professional leaders promoting validity of ADHD, in opposition to negative information in the press. The lack of integrated public teams regarding care of and advocacy for ADHD is problematic.	A non-profit organization was founded in 2000 and has since become strong, advocating the validity of ADHD. Sponsorship from pharmaceutical firms allowed printed materials and DVDs to be sent to different places in the country (mostly schools) and also provide teachers training on ADHD, as well as parent support groups.	ADHD across the lifespan is viewed as a chronic, impairing and treatable condition. It is perceived as a neurobiological developmental condition most responsive to multi modal treatment. Still, provincial differences exist.	High stigma and misunderstanding; lack of well trained doctors, limited school intervention programs. Influence of the Cultural Revolution is still felt, with respect to counter-responses since 1980s that emphasized high achievement and acquiescence to teachers. Rural areas almost totally lacking in services.	General acceptance in society, but considerable public concern and debate about the quality of clinical diagnoses as well as possible over-treatment. Higher prevalence rates occur in urban areas and in low SES families. Immigrants are likely to be undertreated. Although the optimal nature of multimodal treatment is professed, monotherapy with medications is still prevalent.

Table 1 (continued)

Topic Area	Israel	Netherlands	Norway	United Kingdom	United States
System for diagnosing ADHD; Professionals involved in assessment and diagnosis	DSM-IV is the primary source, with psychiatrists, neurologists, and psychologists the key professionals involved.	DSM-IV is the official system. Psychiatrists, neurologists, and psychologists are involved.	For research: DSM-IV, alone or in combination with ICD-10, is used. For clinical evaluations: ICD-10 is used by a majority of professionals, but many use DSM-IV-based rating scales for assessment. Psychiatrists, psychologists, and pediatricians are the professionals involved, in descending order.	ICD-10 is the official system used; hyperkinetic disorder is the official categorical entity. But in practice, most clinicians use DSM-IV (giving ADHD diagnoses). Child psychiatrists, psychologists, pediatricians, nurses and others provide service, often in multidisciplinary teams. Rating scales and defined care pathways are in use.	DSM-IV is the official system used, typically mandated in research investigations and by insurance providers. Pediatricians predominate for clinical evaluations, followed by psychologists and child/adolescent psychiatrists.
Treated Prevalence: medication	The last estimate, from 2004, stated that 2.5% of the total population from 0-18 years received ADHD medications, which would translate to 30-40% of youth with ADHD diagnoses. Figures have undoubtedly increased since that time, such that half of diagnosed youth are estimated to receive medication treatment at some point.	2.1% of the general population of youth, translating to 30%-40% of diagnosed youth.	In 2009: 0.8% of children 6-9 years (girls 0.4%, boys 1.2%), and 2.3% of children 10-18 years (girls 1.3%, boys 3.2%). Thus, perhaps 20-40% of diagnosed children receive medication at some point.	Prescribing databases indicate about 0.3% of children and adolescents receive ADHD medications. Medication is unpopular, especially via media accounts and psychodynamically-oriented clinicians.	A 2007 national survey indicated that 66% of those children and adolescents who currently had ADHD were medicated. The rate of increase in medication use is slowing for children and adolescents, whereas such a rate is increasing for adults with ADHD.
Which medications are used; what is relative share of each; which professionals are involved in mediation treatment?	Mostly methylphenidate. Concerta is not covered by the HMOs and is very expensive.	Immediate-release methylphenidate; Concerta; Strattera	In 2008: 75% of medication costs for ADHD were related to methylphenidate, 19% to atomoxetine, 6% to dexamphetamine, modafinil, and amphetamine. (2,3)	Methylphenidate, long-acting forms of methylphenidate, atomoxetine, and dexamphetamine, in descending order. Child psychiatrists, pediatricians, and (after specialist assessment) general practitioners prescribe.	Long-acting formulations (Adderall, Concerta) now far outpace immediate-release formulations. Atomoxtine's market share has declined since mid-2000s.
Types of psychosocial	Survey of adolescents reveals that needs are not	No data on psychosocial treatment prevalence. Most	In 2002, about 80% received some kind of psychosocial	Psychological treatment is covered by the National	A wide range of psychosocial

treatments used and in what proportion; treated prevalence, if known.	being met for 60% of children. Still, many children and parents receive services in the schools and mental health services: parent training, behavioral treatment, school consultation.	commonly used are parent training, school consultation, and behavior therapy.	treatment. Family therapy, play therapy, parental/ marital therapy are the most commonly used. In schools, adjustments to teaching and supervision of teachers are implemented.	Health Service. Parent training is widely available; specialist behavior therapy and family approaches are provided by child and adolescent mental health.	interventions is offered, many not evidence-based. Play therapy, individual counseling, parent training, social skills groups, school consultation.
What payment systems are used; where are treatments "located" in the service delivery system?	Covered by HMOs. Most of the Israeli population is covered.	A blend of government coverage and insurance reimbursement.	Medication is largely covered by social security system with a small charge for patients (about 300 USD /yr). Most psychosocial interventions are free for patients/families.	National Health Service. Commissioners purchase mental health services for regions of approximately 250,000 people, usually with block contracts. Initial diagnosis in primary care; assessment and initial treatment in specialist clinics; continuing prescription in primary care.	Private insurance, government (Medicaid), out of pocket.
Education system and its influences on prevalence and treatment	Special privileges and accommodations are available for students diagnosed with ADHD. Potential pressures have been noted from school, directed toward parents, to diagnose and treat children suspected of having ADHD.	No special privileges exist for ADHD in the school system, unlike the situation for dyslexia and learning disability, which do receive accommodations.	No direct influences. School authorities must allocate resources to pupils with special needs, but local budgets may restrict the extent of resources.	Medical conditions, including ADHD, are not in themselves grounds for special resources, but educational assessments are made on an individual basis. Knowledge of ADHD in teachers is rather limited.	Federal special education act mandates services/ accommodations for ADHD; nine states have enacted laws restricting school influences on treatment.
Adult ADHD: Trends in diagnosis and treatment	Data not available, but the impression is that the awareness and rates are growing.	Report of prevalence of 4.1%. (4)	There are no prevalence studies of adult ADHD. The number of patients treated for ADHD in the adult age group is increasing. In 2004, 3200 adults got at least one receipt of ADHD medication, while in 2008 this number was 10600 (about 0.3% of the adult population). Of these, 40% were women.	Trends reveal increases in diagnosis and medication, especially following NICE guidance and specific education for adult psychiatrists.	Prevalence estimated at approximately 4%; greatly increasing rates of medication treatment for adult ADHD are evident across the past decade.
Key cultural, historical, or national attitudes and influences	ADHD is an established entity. There are powerful forces in the media against ADHD and medications, including Scientology.	ADHD has been traditionally seen as a developmental neurological disorder.	General acceptance in society, but public concerns and debate persist about the increase in diagnoses and numbers of children treated with	Resistance to widespread use of medication exists; psychosocial treatments are viewed as first-line. NICE provides treatment	Acceptance in society has grown, but many countervailing forces and trends (e.g., Scientology) are at play, such that

	Tolerance exists in school systems for high activity levels in classes, with consequent problems for limit-setting for many children. Thus, ADHD is diagnosed in a system with "high background noise."		medication and about the general increase in use of ADHD medication. Increased focus now exists on the positive aspects of having ADHD, and ADHD in girls.	guidelines; medications not viewed as first-line treatments except in severe cases. Large intra-nation variation exists, depending on clinicians' training and attitudes. Media attitudes often regard ADHD as a euphemism for incompetent parenting.	stigma is still prevalent. Strong within-nation variability in rates of diagnosis and treatment.

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